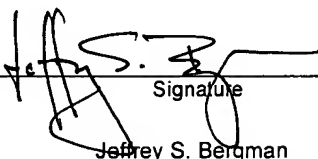


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<b>PRE-APPEAL BRIEF REQUEST FOR REVIEW</b>		<b>Docket Number (Optional)</b> 04630/032001	
		<b>Application Number</b> 10/528,482-Conf. #8462	<b>Filed</b> March 21, 2005
		<b>First Named Inventor</b> Craig Lucas Goodfellow	
		<b>Art Unit</b> 3748	<b>Examiner</b> B. Q. Tran
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal.</p> <p>The review is requested for the reason(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p>I am the</p> <p><input type="checkbox"/> applicant /inventor.</p> <p><input type="checkbox"/> assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)</p> <p><input checked="" type="checkbox"/> attorney or agent of record. Registration number <u>45,925</u></p> <p><input type="checkbox"/> attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. _____</p> <p> _____ Signature Jeffrey S. Bergman _____ Typed or printed name</p> <p><u>(713) 228-8600</u> _____ Telephone number <u>February 5, 2007</u> _____ Date</p> <p>NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.</p>			

☐ \*Total of 1 forms are submitted.



Docket No.: 04630/032001  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Craig Lucas Goodfellow

Application No.: 10/528,482

Art Unit: 3748

Filed: March 21, 2005

Examiner: B.Q. Tran

For: EMISSION REDUCTION APPARATUS

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

In the Final Office Action dated October 6, 2006, the Examiner rejected claims 1-4 and 6-10 under 35 U.S.C. § 102(b) as unpatentable over U.S. Patent No. 6,151,890 ("Hoshi"). In response to the Examiner's final rejection, Applicant respectfully asserts that all of the rejected claims are allowable.

**Legal Standard for Establishing Anticipation**

"To anticipate, every element and limitation of the claimed invention must be found in a single prior art reference, *arranged as in the claim.*" *Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001) (emphasis added). Thus, to form a proper rejection under 35 U.S.C. § 102(b), Hoshi must include each and every element and limitation of the claim *as arranged*.

**Arguments**

Claims 1-4 and 6-10 were rejected under 35 U.S.C. § 102(b) as anticipated by Hoshi. Pending claim 1 is reproduced below for the panel's convenience:

Claim 1

An emission reduction apparatus for an engine exhaust, the apparatus comprising first and second exhaust paths and first and second regenerable emission reduction elements in the respective paths in which the first emission reduction element has a greater emission reduction capacity than the second emission reduction element, and in which the second emission reduction element has a lower operative temperature formulation than the first emission reduction element.

Generally, the Examiner asserts that Hoshi discloses all of the elements of the present application. Specifically, the Examiner asserts that embodiment 9 and Figure 17 of Hoshi disclose regenerable emission reduction elements wherein the first emission reduction element has a greater emission reduction capacity than the second emission reduction element, and wherein the second emission reduction element has a lower operative temperature formulation than the first emission reduction element.

As described by the Examiner, Hoshi discloses an internal combustion engine 1 with first and second three-way catalysts 7 and 8 that receive heat from exhaust gas discharged from the internal combustion engine 1. Because the heat capacity of the second three-way catalyst 8 is smaller than the heat capacity of the first three-way catalyst 7, the temperature elevation rate of the second three-way catalyst 8 is higher than the temperature elevation rate of the first three-way catalyst 7, and the temperature of the first three-way catalyst 7.

A. Hoshi fails to disclose a second emission reduction element having a lower operative temperature formulation

Independent claim 1 recites, in part, an emission reduction apparatus wherein “the second emission reduction element has a lower operative temperature formulation than the first

emission reduction element.” This limitation requires that the second emission reduction element must *operate* at a lower temperature than the first emission reduction element. Thus, the present application requires that a storage capacity of the second emission reduction element be enhanced at a lower temperature. (Present Application, paragraphs [0017]-[0019]).

In contrast, regarding Hoshi, the Examiner apparently believes that because the temperature of the first three-way catalyst 7 elevates to a predetermined temperature earlier than the catalyst of the second three-way catalyst 8, that the three-way catalysts 7 and 8 operate at different temperatures. However, a closer reading of Hoshi reveals that both first and second three-way catalysts 7 and 8 operate at a single “predetermined” temperature. (Hoshi, column 31, line 23). In fact, the passages relied upon by the Examiner confirm that if first three-way catalyst 7 has a lower heat capacity than second three-way catalyst 8, it will take less heat and, therefore, less time for first three-way catalyst 7 to heat up to the predetermined operative temperature. Thus, Hoshi describes three-way catalysts that heat up to predetermined operative temperature at different times, not emission reduction elements that operate at different temperatures, as recited in independent claim 1 of the present application. Because Hoshi does not disclose every element as arranged in claim 1, Hoshi does not properly anticipate the present application.

B. Hoshi fails to disclose using regenerable emission reduction elements

Independent claim 1 of the present application recites first and second regenerable emission reduction elements. Hoshi does not refer to regenerable emission reduction elements, but refers to first, second, and third three-way catalysts 7, 8, and 9. Three-way catalysts are not regenerable emission reduction elements because three-way catalysts operate continuously

without the need for regeneration. In use, three-way catalysts heat up to a predetermined temperature, roughly 300°C, prior to operability. Following Hoshi, if a three-way catalyst has a small heat capacity it will require less heat and thus take less time during engine operation to warm up the three-way catalyst to the predetermined temperature than it would for a three-way catalyst having a larger heat capacity. However, while the heat capacities of the three-way catalysts are different, the temperature at which they begin to operate is the same. It follows that two different three-way catalysts having different respective heat capacities do not *operate* at different temperatures. Rather, it simply means that one of the three-way catalysts will reach the operative temperature before the other, so that the three-way catalysts are operable at different times.

In contrast, the emission reduction elements of the present application require regeneration during operation. Referring to Figure 1 of the present application, path 14 is initially closed by valve 18, and valve 16 is open, thereby diverting exhaust flow through path 12 and trap 26. When trap 26 is fully loaded or approaching fully loaded, a regeneration phase is entered according to which valve 18 is opened and valve 16 is partially closed so as to divert exhaust flow through path 14. Fuel is then injected at port 22 and regeneration takes place at trap 26. (Present Application, paragraph [0015]). The three-way catalysts of Hoshi do not require a regeneration phase of operation, and as such, are not regenerable emission reduction elements. Because Hoshi discloses using three-way catalysts, and not regenerable emission reduction elements, Hoshi does disclose every element and limitation of claim 1. As such, Hoshi does not properly anticipate the present application.

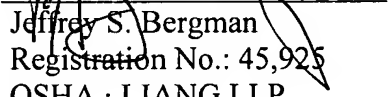
Conclusion

As described above, the Examiner's interpretation of operative temperature formulation is incorrect, and as such, Hoshi fails to show or suggest the present invention as arranged in claim 1. Furthermore, the Examiner has incorrectly interpreted the three-way catalysts of Hoshi as being regenerable emission reduction elements. Upon a correct interpretation, in view of the above, the panel will appreciate that independent claim 1, and all claims depending therefrom, are patentable over Hoshi. Accordingly, favorable decision from the panel is respectfully requested. Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (09430.261001).

Dated: February 5, 2006

Respectfully submitted,

By



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**STATEMENT UNDER 37 CFR 3.73(b)**Applicant/Patent Owner: Ricardo UK LimitedApplication No./Patent No.: 10/528,482 Filed/Issue Date: March 21, 2005Entitled: EMISSION REDUCTION APPARATUSRicardo UK Limited, a  
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title and interest.  
(The extent (by percentage) of its ownership interest is \_\_\_\_\_ %)

in the patent application/patent identified above by virtue of either:

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 017063, Frame 0419, or a true copy of the original assignment is attached.

OR

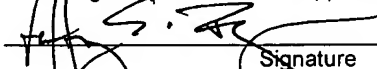
- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.
2. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.
3. From: \_\_\_\_\_ To: \_\_\_\_\_  
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☐ Additional documents in the chain of title are listed on a supplemental sheet.

- ☒ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.  
[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO.]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

  
Signature2/5/07  
DateJeffrey S. Bergman  
Printed or Typed Name(713) 228-8600  
Telephone NumberAuthorized Signer for Assignee  
Title